

REMARKS

Applicants have amended claims 9, 22, 31, 40, 60, and 61 as set forth above. Applicants note with appreciation the Office's indication that claims 1-8, 14-21, 27-28, 36-38, 45-53, 54-57, 58 and 59 are allowable over the prior art of record and claims 10-13, 23-26, 32-35, and 41-44 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the above amendments and the following remarks, reconsideration of the outstanding office action is respectfully requested.

The Office has rejected claims 9, 22, 31, 40, and 60-61 under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,452,384 to Kurita et al. (Kurita). The Office asserts Kurita discloses in FIG. 3: at least one structure 10 at least partially in a non-opaque portion of the optical element and at least adjacent a surface of the optical element; and a source 20 of light with a mode profile that provides an electric field which has a vector component substantially perpendicular to the surface of the optical element, the source positioned to propagate at least a portion of the light through the optical element onto an object 30, the structure 10 enhancing the electric field of the light which optically interacts with the object; wherein the optical element comprises an optical base 51 and an optical layer 50 connected to the optical base, the structure 10 is at least partially in and at least adjacent to a surface of the optical layer.

Kurita does not disclose or suggest, "the structure is at least partially in and at least adjacent to a surface of the optical layer which is adjacent to a vicinity where the enhanced electric field protrudes from the optical element" as recited in claim 9, "the structure is at least partially in and at least adjacent to a surface of the optical layer which is adjacent to a vicinity where the enhanced electric field protrudes from the optical element" as recited in claim 22, "the structure is at least partially in and at least adjacent to a surface of the optical layer from which an enhanced electric field that interacts with an object protrudes from the optical element" as recited in claim 31, or "depositing a material in the at least one opening to form a structure . . . wherein the forming the at least one opening is at least partially in and at least adjacent to a surface of the optical layer from which an enhanced

electric field that interacts with an object protrudes from the optical element” as recited in claim 40.

The Office’s attention is respectfully directed to FIG. 3 in Kurita which clearly illustrates that the refraction type lens 10 is adjacent reflection film 60 in transparent substrate 50 and is directly opposite from the surface of transparent substrate 50 where the beams are directed. In sharp contrast, as discussed, by way of example in paragraph 32 in the above-identified patent application:

The electric field component of the focused light 24 perpendicular to the surface of the solid immersion lens 16(1), referred to as longitudinal field, creates a highly localized, enhanced field 34 at the surface 28 of the lens 16(1) by the structure 18(1). Since the structure 18(1) is in the vicinity of the surface 26 of the object 12, the enhanced field 34 protrudes into the space outside the solid immersion lens 16(1) thereby enabling a highly localized interaction with the surface 26 of the object 12 which is close by. The lateral extent of the enhanced field 34 is smaller than the size of diffraction limited illumination and can reach down to about ten nm.
[Emphasis added]

Accordingly, in view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw the rejection of claims 9, 22, 31, and 40.

Additionally, the Office has rejected claims 60-61 under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,994,818 to Keilmann (Keilmann). The Office asserts Keilmann discloses in FIG. 3: an elongated optical element 10; at least one structure 20 at least partially in a non-opaque portion 22 of the optical element; and a source of light 16 (not shown) positioned to propagate at least a portion of the light through the optical element in a direction generally parallel to the surface of an object (not shown), the structure enhancing the electric field of the light propagating through the optical element which interacts with the object. The Office asserts since an object to be investigated is understood to be three-dimensional, some portion of its surface would technically be parallel to light in the optical element (e.g. for a film, the surface at the edges of the film, even if it is on a microscopic scale)

Keilmann does not disclose or suggest, “a source of light positioned to propagate at least a portion of the light through the optical element in a direction generally

parallel to a surface of the elongated optical element which faces an object” as recited in claim 60 or “directing light through the elongated optical element in a direction generally parallel to a surface of the elongated optical element which faces an object, the structure enhancing the electric field of the light which interacts with the object” as recited in claim 61.

The Office’s attention is respectfully directed to FIGS. 1-3 and col. 2, line 67 to col. 3, line 1 in Keilmann which illustrate and disclose, “an axial or radiation propagation direction z from a point $z = -a$ to an end aperture 14 at $z = +d$.” Accordingly, in Keilmann the direction of propagation is perpendicular to the surface of the waveguide segment 10 which faces the object. In sharp contrast, as illustrated in FIG. 2 and described in paragraphs 36 and 37 in the above-identified patent application, a source of light 20 is positioned to propagate at least a portion of the laser light through the optical waveguide element 36 in a direction generally parallel to a surface 38 of the optical waveguide element 36 which faces the object 12. As a result, this system in accordance with embodiments of the present invention is able to achieve high optical resolutions for applications, such as imaging, lithography, data storage, and surface modification. Therefore, in view of the foregoing amendments and remarks, the Office is respectfully requested to reconsider and withdraw the rejection of claims 60 and 61.

The Office has objected to claims 10-13, 23-26, 32-35, and 41-44 as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In view of the foregoing amendments and remarks with respect to the independent claims from which these claims depend, no further amendment of these claims is believed to be necessary and these claims are believed to be in condition for allowance.

In view of all of the foregoing, Applicants submit that this case is in condition for allowance and such allowance is earnestly solicited.

Respectfully submitted,

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